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electronics for telecommunications

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Comments on Notice of Proposed Rule Making, ET Docket Number 96-102, Amendment of the Commission's Rules to Provide for Unlicensed NII/SUPERNet Operations in the 5 GHz Frequency Range. Adopted April 26, 1996 and Released May 6, 1996.

To the FCC:

Larus Corporation manufactures telecommunication transmission equipment for the various telephone operating companies, long distance providers, as well as government and private network providers. Larus also presently manufactures a Part 15.247 Spread Spectrum Point to Point Digital Microwave Radio System.

Regarding the operation of the proposed services over long distances using higher output power and directional antennas: (Discussion, B. Technical Standards, paragraphs 38 through 48)

To allow operation of another point to point digital service in the same band which is already shared with the spread spectrum users in effect removes any incentive to develop spread spectrum technology. Rather, it is more cost effective to provide the same capacity, or increased capacity with no regard to bandwidth efficiency or band sharing.

Additionally, without any means to control usage (other than the listen before talk method outlined) the band would rapidly degrade and become unusable as everyone would be listening for a quiet time that would (given enough users) never arrive. This is the same problem seen by Local Area Networks (LAN's) when their capacity is more than 15 % of the overall maximum transfer rate: they degrade and become unusable.

The method and service outlined will only be feasible in small areas with the limited EIRP proposed. For longer distances, the existing FCC Part 15.247 products are a better solution as these were designed to inter-operate by means of the spread spectrum technology.

We would also like to note the existence of another service, Part 101.501 Point to Multi-Point Digital Electronic Message Service also could provide all of the petitioners services. The objections to this service would be: filing, filing fees, processing times, and construction permits. These objections could be over come by waiving fees and filing for schools and other non-profit organizations, speedy processing, and waiving construction permits. This Part 101.501 Service is more closely suited to the intended application.

Regarding Channel Plans and Bandwidth: (Discussion, B. Technical Standards, paragraph 53)

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Larus believes that the bandwidth efficiency of this service should be no less than 3 bits/hertz. Set top digital television boxes are presently using 6 bits/hertz technology. Providing no constraint on efficiency would lead to the lowest cost (and worst bandwidth efficiency) resulting in the fewest users per available bandwidth.

Regarding a new Part 16 Regulations: (Discussion, D. New Part 16 Regulations)

By making these new proposed services a protected user of these frequencies, one would be removing all reason for the 15.247 use of the same spectrum. These devices, if successful, would be everywhere, and thus impossible to locate in the event of an interference claim. How would one school establish a claim of interference over the use of the same frequencies in regards to a rural town user? The original Part 15.247 deals most effectively with the issues outlined by Apple, and I would suggest that they consider manufacture of Part 15.247 devices instead.

Regarding the potential for interference with existing Part 15.247 users: (Discussion, E. Other Matters, paragraph 61)

These proposed devices will appear as noise to spread spectrum users, and will reduce the effective bit error performance, or degrade the overall performance of the spread spectrum link. These Part 15.247 devices which are intended to operate in point to multi-point applications in the same environments will be rendered useless due to this interference. It is in effect, allowing narrow band high speed digital services with roughly the same power per bit to occupy the same spectrum with another user at 10 or more times less bit rates. These services will not co-exist, and neither will operate well (if at all). The spread spectrum system due to the jammer margin or system gain will perform better than the proposed devices, but would probably not have the performance objective required by the marketplace. The proposed devices will probably not work at all.

Regarding 15 meters above the ground: (Appendix A: Proposed Rules, 15.409 (a))

We propose changing this to "less than 15 meters above surrounding structures." Above the ground would allow placement on a mountain top on a 1 meter pole. This is obviously not the intent of this rule. We are aware of many installations of 15.247 omnidirectional antenna equipped devices in the 900 MHZ ISM band where location on mountain tops has resulted in other users of the band having no use, or marginal use of the band.

In conclusion, Larus objects strongly to: allowing long distance operation with directional antennas and EIRP greater than +20 dBm, bandwidth efficiencies below 3 bits per hertz, and any exclusive use of this band (Part 16). Larus also wishes to note that the 15 meter height rule proposed is vague and allows for operation beyond the intent of the proposed rule, and that operation of these

narrow-band devices when shared with 15.247 devices will be marginal at best, and the two technologies can not coexist in the same location.